structures 18 and power consumption circuitry 20 are also coupled to power supply 12 and board decoupling structures 16.

System 10 illustrates current flow from power supply 12 to power consumption circuitry 20. Power supply 12 intends to supply a constant voltage. For example, power supply 12 may be a power regulator, battery, or the like. Also note that power supply 12 may be included as part of the circuit board such as board-level circuitry 4, or may be an external power supply as illustrated in FIG. 1 (such as, for example, in automotive applications). Current flows from power supply 12 through board-level circuitry 4. Board-level circuitry 4 includes board power interconnects 12 which represent the inherent, parasitic inductance of the circuit board power routes. Also, board-level circuitry 4 may include board decoupling structures 16 which, in one embodiment (as illustrated in FIG. 1), is a discrete capacitor component. This discrete capacitor component includes inherent resistances and inductances, as illustrated in board decoupling structures 16 of FIG. 1. Current then flows from board-level circuitry 4 through the package leads included in package 6. These package leads also include an inherent, parasitic inductance as illustrated by package interconnect inductance 14. Current then flows through integrated circuit power interconnects 22 before reaching the devices within power consumption circuitry 20. Integrated circuit power interconnect 22 is modeled by a resistor and inductor in system 10.

After flowing through integrated circuit interconnect 22, the current reaches power consumption circuitry 20 which is represented in FIG. 1 as a variable resistor (i.e. variable load). For example, power consumption circuitry 20 may include operational circuitry such as the logic gates of a microprocessor core. However, in alternative embodiments, power consumption circuitry 20